tectonic plate neared the islands to the north about 20 million years ago. Some Helmet Orchid relatives are epiphytes on the branches of tropical trees. How did our Helmet Orchids' exploitation of the Fungus Gnat evolve?

This is just one example of how very complex ecosystems are. The threat to these and many other native orchids is obvious. If their pollinators are wiped out, the orchids are doomed. In this case, the Helmet Orchids, Gnat Orchids and Greenhoods depend on the survival of the Fungus Gnat, which depends on the survival of the mushroom, *Dermocybe clelandii*. In turn, this mushroom, by its mycorrhizal association, ensures the health of the eucalypts ... and so on.

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Graham Patterson, Pat Grey and Ed Grey

PO Box 175, Lower Plenty, Victoria 3093

Springtail eats slime mould!

On 5 July 2009, the Fungi Group of the Field Naturalists Club of Victoria (FNCV) made a fascinating discovery while foraying on the Lerderderg Heritage River Trail from the Jack Cann Reserve, in the Wombat State Forest, near Blackwood, Victoria. (37°28'35.4"S 144°17'13.2"E; I can give the location with confidence because it was right next to a rare 'toothpick' fungus that we were recording and we took a GPS reading of that).

The trail passes through dry box and stringybark heathy woodland and on the side of the track we found a bright yellow slime mould (Myxomycete) on a patch of leafy liverwort. This was not especially unusual in itself, but I am interested in slime moulds and was keen to record it. The specimen was still transforming from the plasmodial stage, but the very weak strand-like stalks and pendant sporangia suggested it was *Badhamia* sp. However, while photographing the slime mould, I noticed that some of the sporangia had been disturbed and seemed to be reverting back to plasmodial slime— something they easily do when physically disturbed at this stage of their development. Upon closer inspection of my photos, I was surprised, and delighted, to see the cause of this disturbance—a tiny creature was feasting on the slime mould!

This stunningly beautiful little beastie (it was only about 3–4 mm long) (Fig. 1) had the most remarkable colours and features. It had a purple body with two rows of pink processes down each flank (the outer ones were quite long). I had never seen anything like it before, so I sent an image to Ian Endersby who suspected it was a type of springtail and forwarded it on to Penny Greenslade (a world-renowned expert on the taxonomy and ecology of Collembola). She confirmed that it was indeed a springtail—an uchid Collembola of the genus *Acanthanura* (subfamily Uchidanurinae). The species of this subfamily are the largest and most spectacular of the springtails, and unlike most springtails, lack a jumping organ. Greenslade co-authored an article in *The Victorian Naturalist* (Greenslade *et al.* 2002), describing log-inhabiting Uchidanurinae. The article recorded two observations of these creatures feeding on the plasmodial stage of slime moulds in Victoria and Tasmania, and suggested that this may be more common than previously thought. She suggested that their specialised mouthparts indicate that they have a preference for, or even feed exclusively on, slime moulds.

Penny was quite excited by this find and pointed out that these creatures are quite rare

Springtail on slime mould.

and endangered by fire and logging. Large parts of the area we visited were recently burnt, and the Wombat State Forest does have proposed logging coupes (although not in the area around the Heritage Walk where we were), so the threats may have been quite close for these particular individuals. The weather was cold, overcast and tending to drizzle—ideal conditions for uchid springtails (and many slime moulds), which like low temperatures and high humidity.

The FNCV Fungi Group often finds springtails amongst the gills of fungi. Penny has found that some endemic species and even genera of Collembola specialise on fungi, and some feed exclusively on the fungal spores.

The ecology of fungi, slime moulds and insects is fascinating. Stephenson and Stempen (2000) describe beetles that are commonly found feeding on the sporangia or plasmodium of slime moulds and suggests that some are obligate myxomycete specialists. Certain species of flies are also known to lay eggs in slime mould plasmodium and the larvae feed on the plasmodium. There are also a number of fungi that colonise slime moulds. Myxomycetes typically feed on bacteria found in decaying wood and litter; however, there is evidence that some slime moulds prefer growing amongst mosses and liverworts — presumably these provide a suitable habitat for sporulation. Some slime moulds also are known to feed on fungal spores.

Unfortunately, I did not collect the Collembola (it didn't occur to me to do so at the time, and I wouldn't have known how to handle it anyway). I did collect the slime mould but the animal appeared to have fled pretty quickly (although it seemed unperturbed by people taking photographs for about 15 minutes).

To be honest, I was glad it departed, because I did not want it to eat all the slime mould before I had a chance to examine it. As it happened, much of the slime mould disintegrated on the journey home.

I believe the slime mould was *Badhamia* sp., but my microscopical examination was constrained by the very few sporangia that had matured. It had dark brown, warty spores, mean size 12.1 by 11.0 µm. with large limey plates (capillitia were not observed).

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Paul George
238 Canterbury Road
Canterbury, Victoria 3126